

FIG. 1A  
(PRIOR ART)

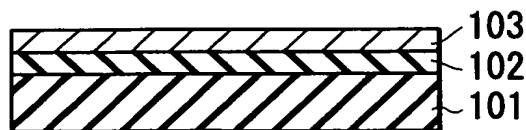


FIG. 1B  
(PRIOR ART)

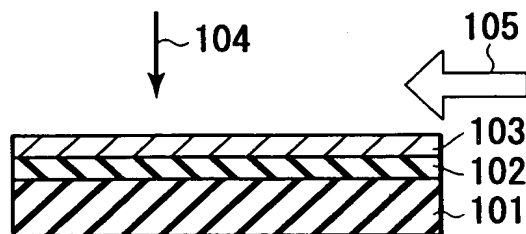


FIG. 1C  
(PRIOR ART)



FIG. 1D  
(PRIOR ART)

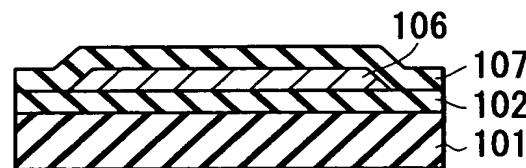


FIG. 1E  
(PRIOR ART)

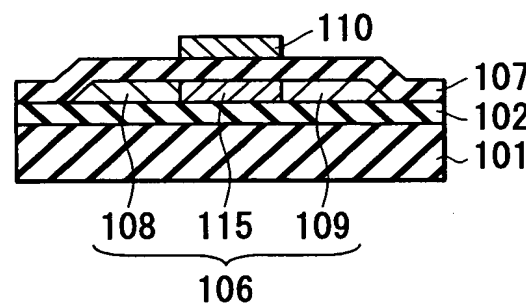


FIG. 1F  
(PRIOR ART)

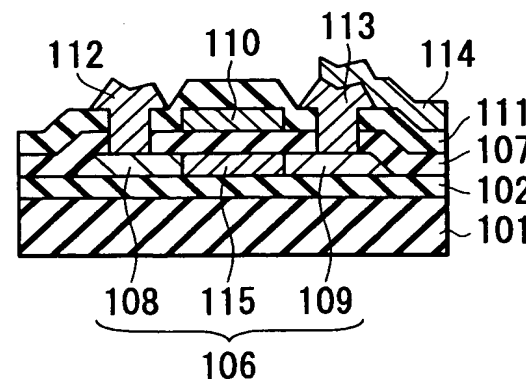


FIG. 2

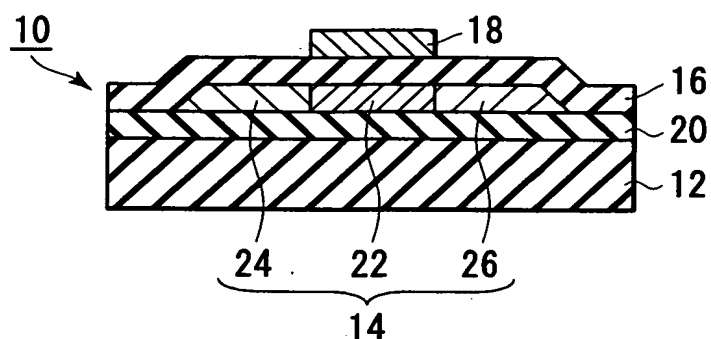


FIG. 3

Dopant	Carbon	Oxygen
Acceleration energy	100 KeV	130 KeV
Sample number	Dose (atoms/cm <sup>2</sup> )	Dose (atoms/cm <sup>2</sup> )
001	$1.5 \times 10^{13}$	$3 \times 10^{12}$
002	$1.5 \times 10^{13}$	$6 \times 10^{12}$
003	$1.5 \times 10^{13}$	$1.5 \times 10^{13}$
004	$1.5 \times 10^{13}$	$3 \times 10^{13}$
005	$1.5 \times 10^{13}$	$6 \times 10^{13}$
006	$3 \times 10^{13}$	$3 \times 10^{12}$
007	$3 \times 10^{13}$	$6 \times 10^{12}$
008	$3 \times 10^{13}$	$1.5 \times 10^{13}$
009	$3 \times 10^{13}$	$3 \times 10^{13}$
010	$3 \times 10^{13}$	$6 \times 10^{12}$
011	$6 \times 10^{13}$	$3 \times 10^{12}$
012	$6 \times 10^{13}$	$6 \times 10^{13}$
013	$6 \times 10^{13}$	$1.5 \times 10^{13}$
014	$6 \times 10^{13}$	$3 \times 10^{13}$
015	$6 \times 10^{13}$	$6 \times 10^{13}$

Dose (atoms/cm <sup>2</sup> )	Concentration (atoms/cm <sup>3</sup> )	
	Carbon	Oxygen
$3 \times 10^{12}$		$1 \times 10^{17}$
$6 \times 10^{12}$		$2 \times 10^{17}$
$1.5 \times 10^{13}$	$5 \times 10^{17}$	$5 \times 10^{17}$
$3 \times 10^{13}$	$1 \times 10^{18}$	$1 \times 10^{18}$
$6 \times 10^{13}$	$2 \times 10^{18}$	$2 \times 10^{18}$

FIG. 4

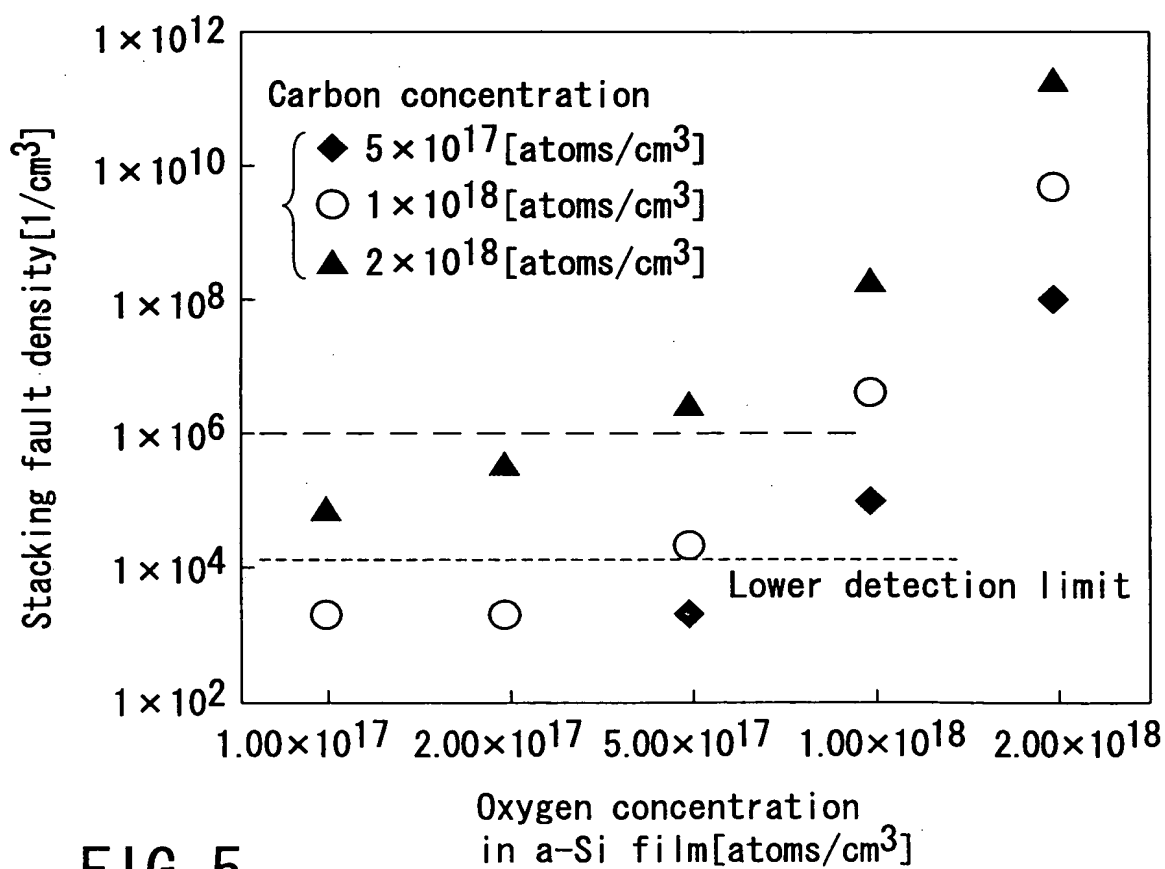


FIG. 5

Dopant	Carbon	Oxygen	Nickel
Acceleration energy	100 KeV	130 KeV	100 KeV
Sample number	Dose (atoms/cm <sup>2</sup> )	Dose (atoms/cm <sup>2</sup> )	Dose (atoms/cm <sup>2</sup> )
001	$1.5 \times 10^{13}$	$1.5 \times 10^{13}$	$7 \times 10^{11}$
002	$1.5 \times 10^{13}$	$1.5 \times 10^{13}$	$1.5 \times 10^{12}$
003	$1.5 \times 10^{13}$	$1.5 \times 10^{13}$	$3 \times 10^{12}$
006	$3 \times 10^{13}$	$3 \times 10^{13}$	$7 \times 10^{11}$
007	$3 \times 10^{13}$	$3 \times 10^{13}$	$1.5 \times 10^{12}$
008	$3 \times 10^{13}$	$3 \times 10^{13}$	$3 \times 10^{12}$
011	$6 \times 10^{13}$	$6 \times 10^{13}$	$7 \times 10^{11}$
012	$6 \times 10^{13}$	$6 \times 10^{13}$	$1.5 \times 10^{12}$
013	$6 \times 10^{13}$	$6 \times 10^{13}$	$3 \times 10^{12}$

FIG. 6

Nickel	
Dose (atoms/cm <sup>2</sup> )	Concentration (atoms/cm <sup>2</sup> )
$7 \times 10^{11}$	$5 \times 10^{16}$
$1.5 \times 10^{12}$	$1 \times 10^{17}$
$3 \times 10^{12}$	$2 \times 10^{17}$

FIG. 7

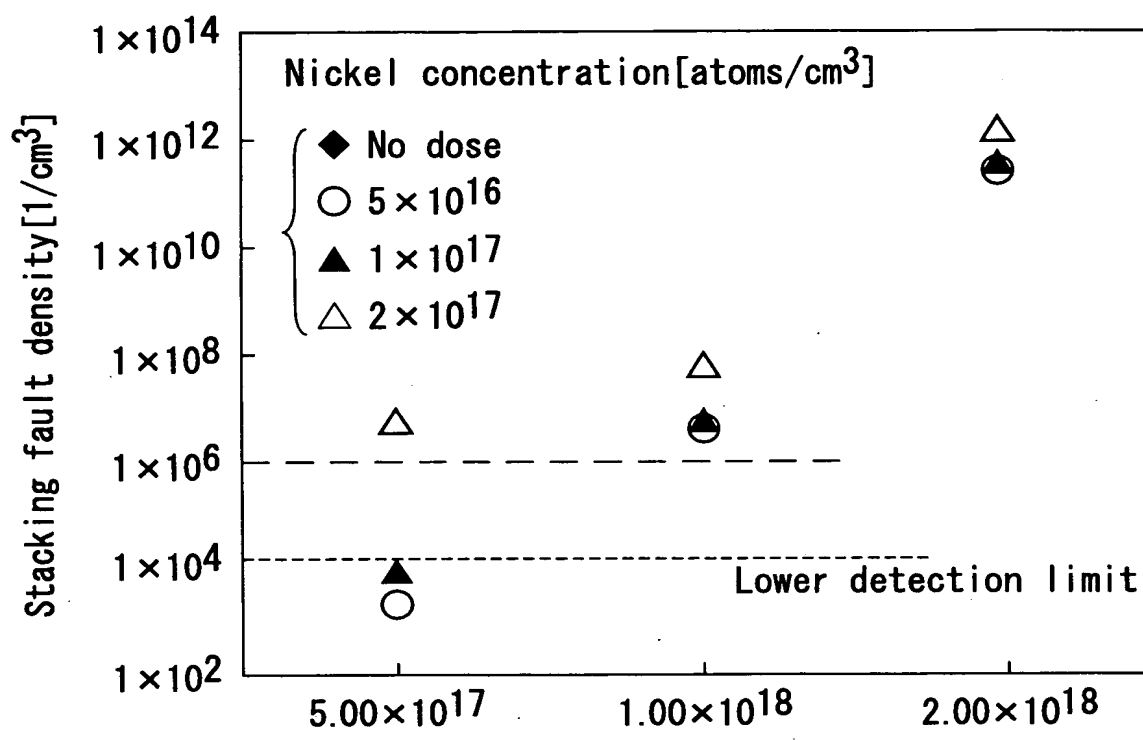


FIG. 8

Oxygen and carbon concentration  
in a-Si film [ $\text{atoms}/\text{cm}^3$ ]

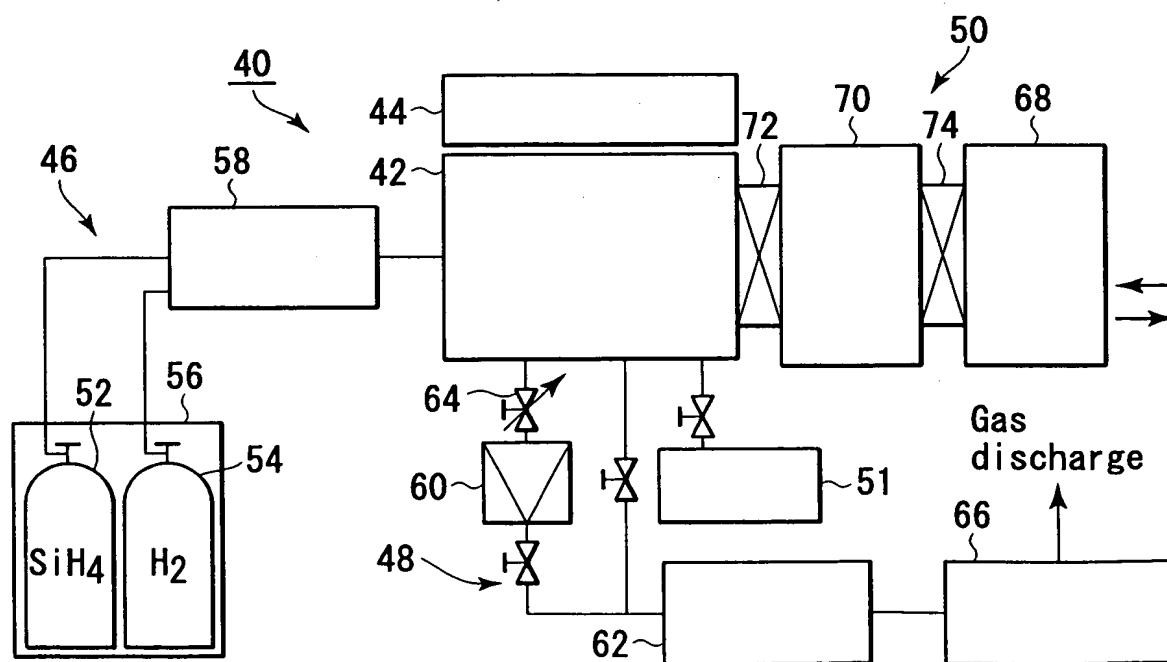


FIG. 9

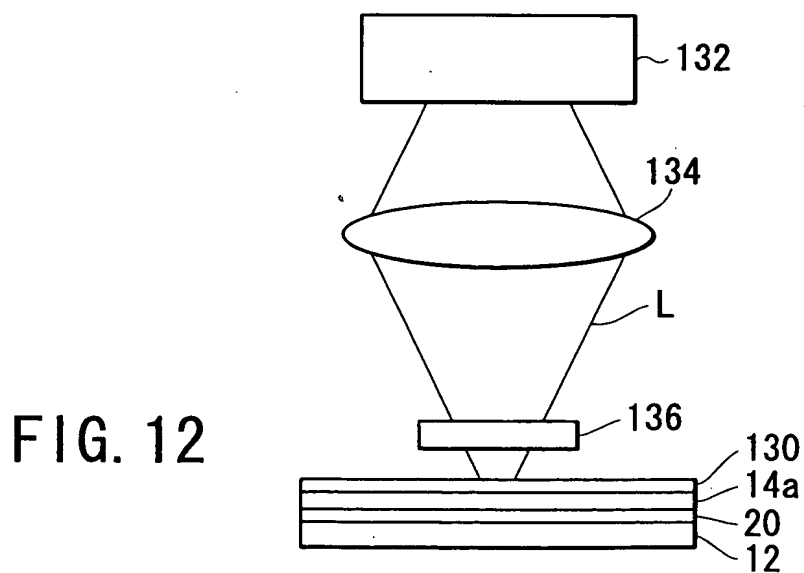
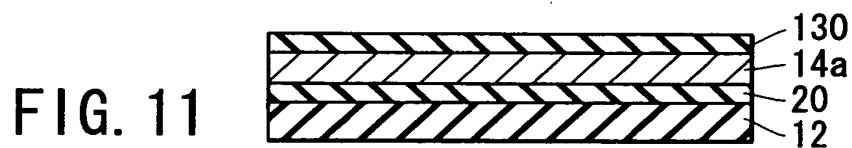
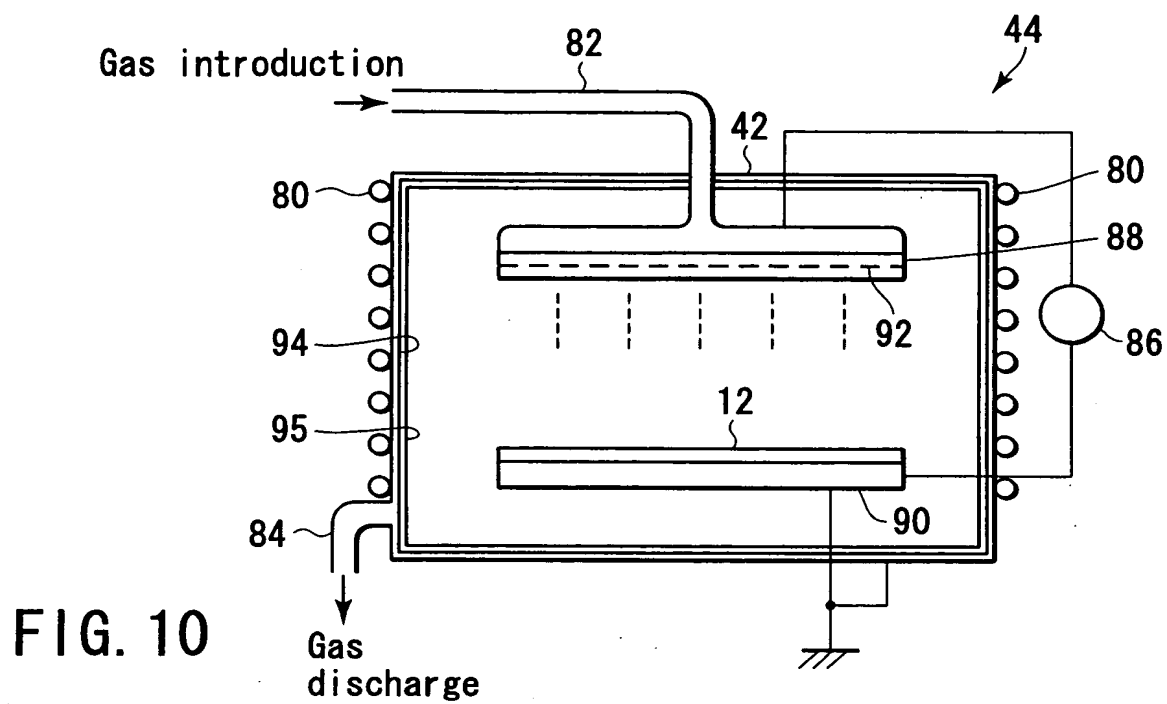


FIG. 13

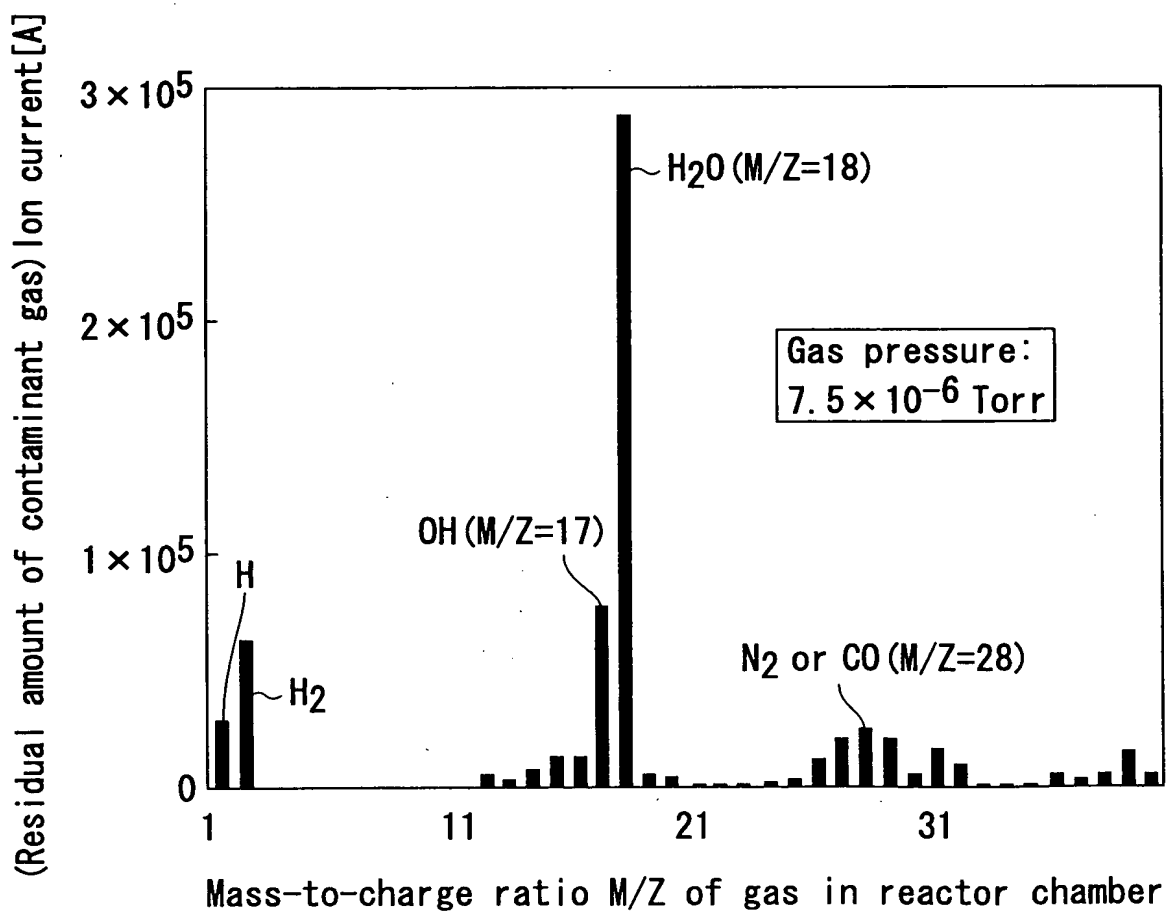
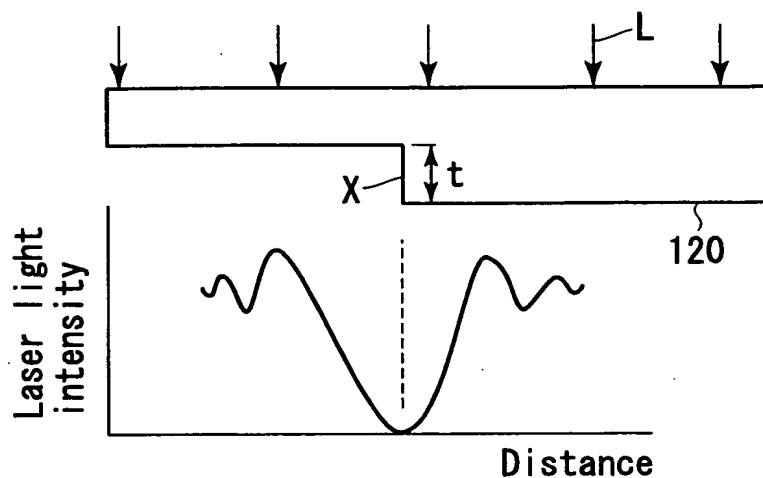


FIG. 14

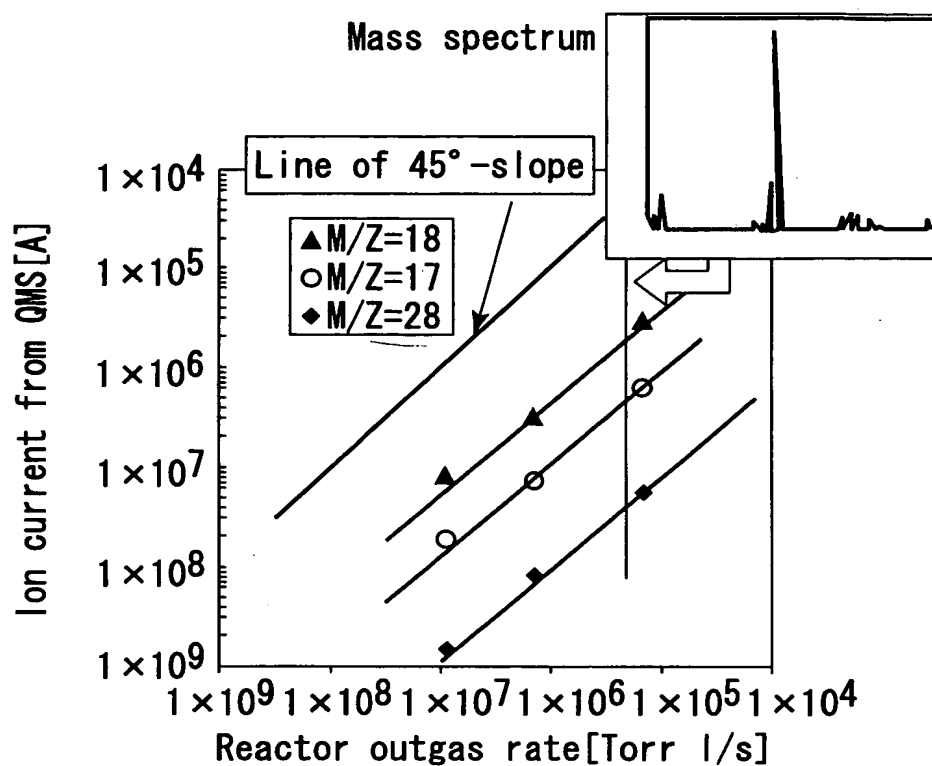


FIG. 15

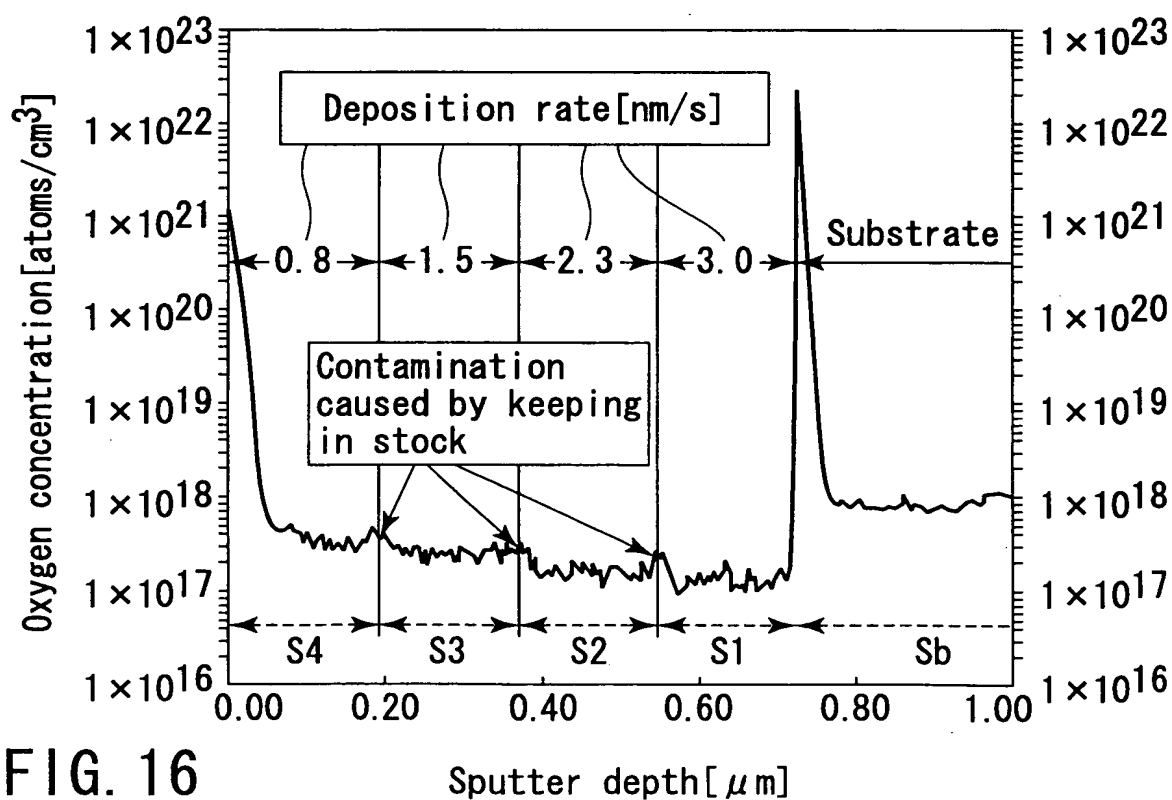


FIG. 16



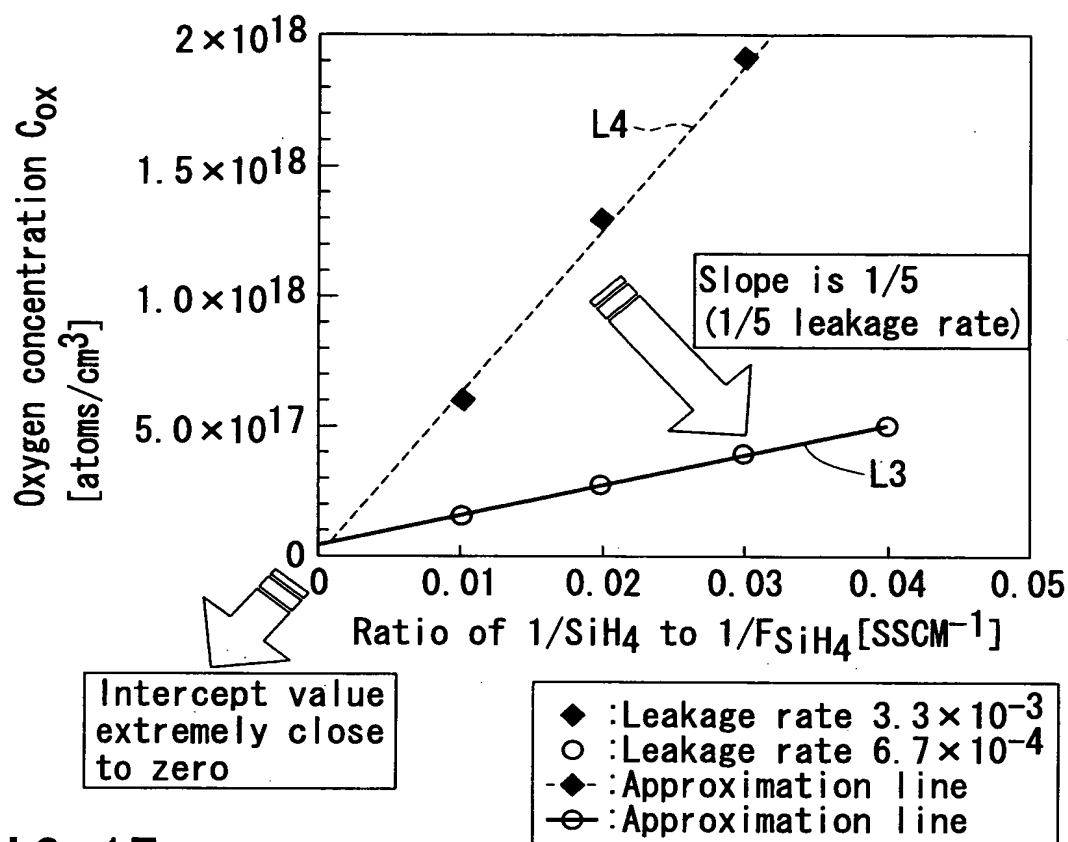


FIG. 17

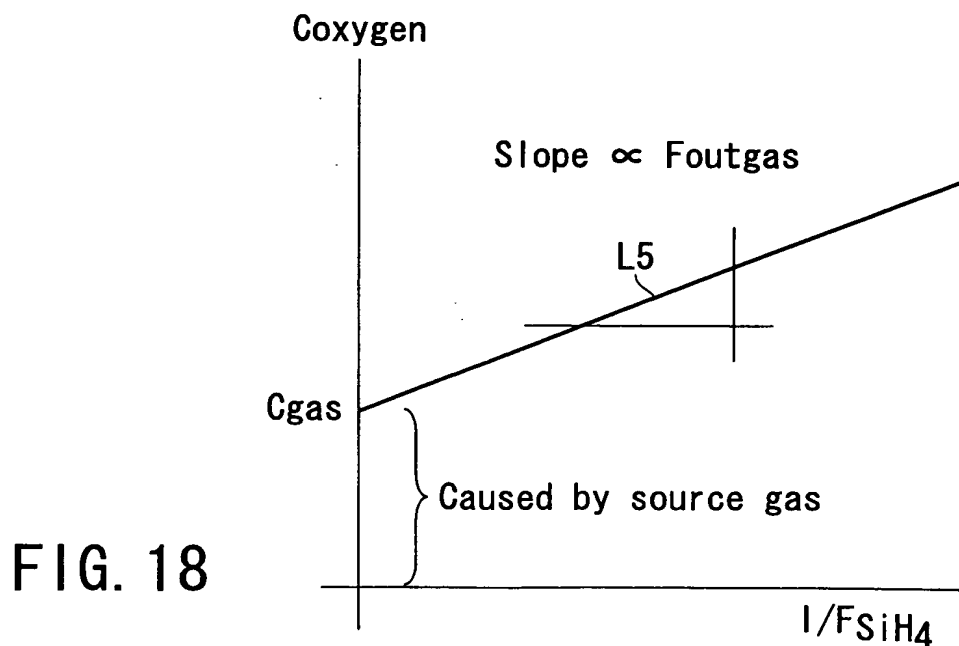


FIG. 18

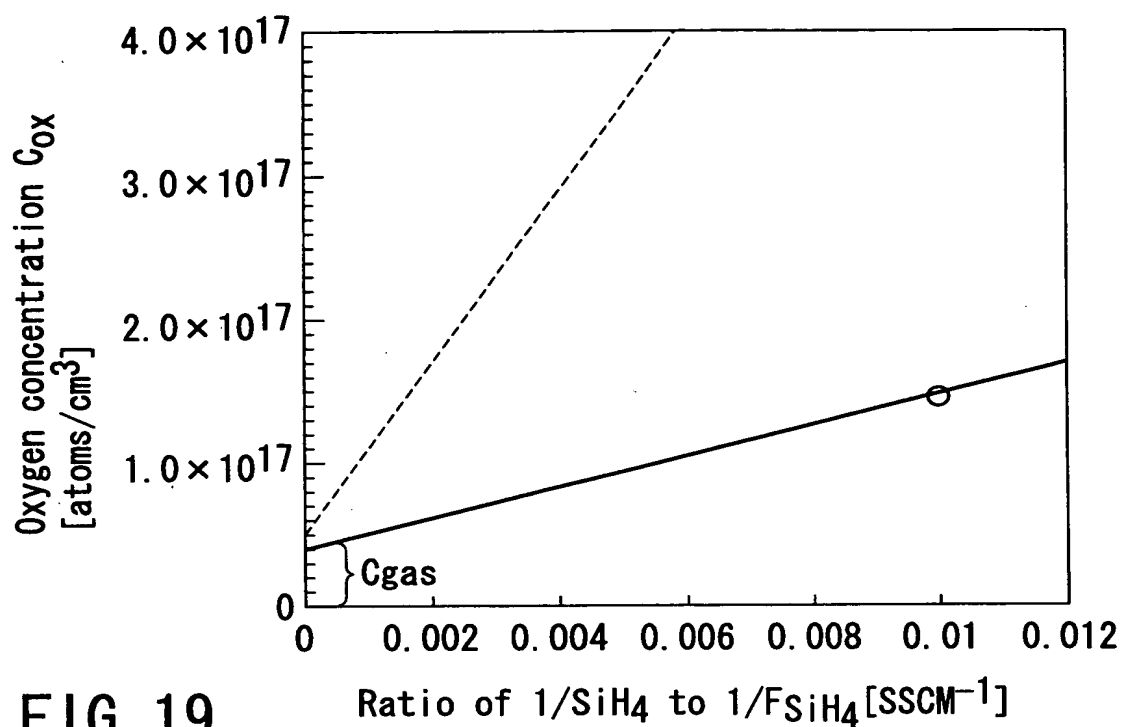


FIG. 19

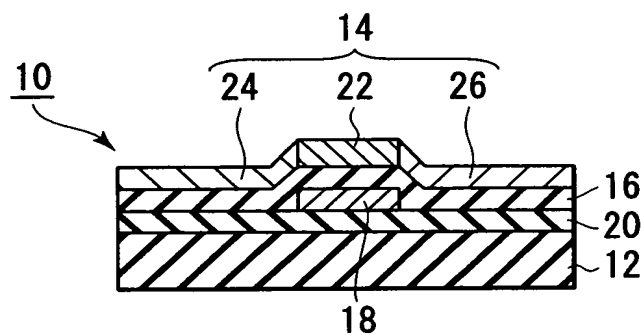


FIG. 20

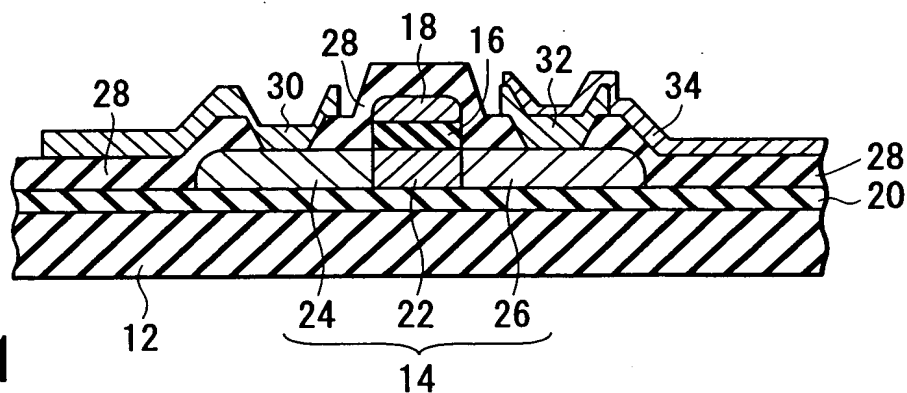


FIG. 21